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The KWI conduit

Karst Waters Institute

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KWI Conduit

Fall 1997

Volume 5, No. 2

KARST WATERS INSTITUTE AND THE KWI BOARD MEET

The Karst Waters Institute met in Birmingham, Michigan on October 4-5, 1997. This meeting was a departure from previous meetings in that it had two separate components: a meeting of the Institute on Saturday, October 4th, and a meeting of the Board of Directors on Sunday, October 5th. The Institute meeting discussed past, current and future KWI operations. The various Departments of the KWI delivered reports on Saturday that were made available to the Board on Sunday, including items requiring Board action. The KWI, as it matures, needs to separate Institute activities from the role of the KWI Board as the oversight body. Currently, most Board members have a significant role in the operation of the Institute, and therefore wear two or often three hats within the KWI. In the future, the goal is to increase participation in the KWI to the extent that the Institute and the Board become different people as well as different deliberative bodies.

KWI Meeting, Saturday, October 4, 1997

The Institute meeting was preceded by a series of Department meetings of the KWI and the KWI Board. The KWI Board Fund Raising Committee met to discuss completion of the KWI "case statement". This document will provide a description of the KWI that can be used to present the KWI to potential funding sources. The KWI Communications, Research, and Education Committees also met to discuss their reports for presentation to the Institute (and in finalized form the next day to the KWI Board).

KWI President Tom Kane called the Institute meeting to order at 1:30 pm. This meeting was actually an Executive Committee meeting involving the President, Secretary, Treasurer, and the four Vice Presidents (Executive, Communications, Education and Research), and their assistants (e.g. publication sales, KWI Conduit editor, etc.) and guests. President Tom Kane gave a brief report on the state of the KWI, deferring the details to the reports of the other various officers.

Vice President Dave Culver gave the Education Department's report. Dan Fong and Horton Hobbs have proposed a biology summer field camp at Russell Cave National Monument in Alabama, with support from the Cave Conservancy of the Virginias. A KWI cave management workshop has been suggested by Carol Wicks for the Ozarks. The concept of college courses on karst for college teachers was discussed.

Vice President Ira Sasowsky gave the Communication Department's report. John Mylroie seeks to retire as editor of the KWI Conduit and will conduct a search for a new editor (see editorial). Publications sales continue, but at a low level. KWI Special Publication 4 (The Karst Hydrology Atlas of West Virginia) is in the final stages and will go to the printer within 30 days (see page 9). The KWI Homepage (<http://www.uakron.edu/geology/kwi.html>) is continually updated with news, and bibliographic lists have been added. A problem was noticed with KWI Special Publication 3, in that interior pages came lose; the printer re-bound all remaining copies at no charge. Ira introduced a proposal to set standards and procedures for future KWI conferences and publications, which was approved. KWI publications will also be made available to vendors. Two future KWI conferences were discussed

(see page 7), as well as assisting with web page support for the IGCP 379 Karst Processes and the Global Carbon Cycle conference in September of 1998 (see page 10).

Vice President Will White presented the Research Department's report. The National Science Foundation grant proposal for the Organ Cave project will be re-written and submitted for the December 1 deadline. Another grant for biodiversity mapping is almost completed. The work to develop a project on contaminant transport in fractured aquifers through the Army Research Office is on hold. A research project on the use of caves as a source of data on historic climatic change was introduced.

Treasurer Dan Fong gave a brief report on the KWI finances, which are in good shape even if they are not as much as the KWI would like. Dan Fong also reported a need to re-organize the KWI files in West Virginia. Additionally, a vendor policy for KWI conferences needs to be established. Secretary Rane Curl updated the address list and reported the changes necessary to the bylaws to reflect the current department status of the KWI (Communications, Education, Research). He noted that KWI Board meetings will now be held only once a year, in March as stated in the bylaws, but that Institute and Executive Committee meetings may be held several times a year.

Jack Hess, Chair of the KWI Board, introduced discussion of guidelines for the positions of "Board Member Emeritus" and "Institute Associate". It was agreed that "Board Member Emeritus" was self explanatory, and that a slate of candidates would be presented to the KWI Board on Sunday. "Institute Associates" are appointed by the KWI President, with the following privileges: 1) submit external grant applications through the KWI; 2) participate in Institute meetings; and 3) participate in KWI activities. The appointment will last the length of the project to a maximum of three years, subject to renewal.

The meeting ended with a review of the motions that will be presented to the KWI Board of Directors at their meeting on Sunday (October 5th). President Kane adjourned the meeting at 5:00 pm.

Karst Waters Institute Board of Directors Meeting, Sunday, October 5, 1997

The Karst Waters Institute Board of Directors met under the leadership of Board Chair Jack Hess on Sunday morning, October 5, 1997. The meeting was extremely business-like and brisk as reports delivered the previous day were accepted by the Board. The bylaws were modified to agree with the new department structure of the Institute. One change was to make Board terms 3 years long, but on a staggered basis to avoid a large amount of Board turnover in any one year. The Board also allocated funds to various projects, including those necessary for final completion of the Karst Hydrology Atlas of West Virginia (see article, page 9). The title "Board Member Emeritus" was bestowed on Dr. Dan Fong, Dr. Janet Herman, and Dr. Art Palmer in recognition of their hard work for the KWI Board. The Board agreed to meet for its annual March meeting on March 28-29, 1998, in Charles Town, West Virginia.

EDITORIAL

The KWI Conduit began its existence in the spring of 1992 as the "Karst Waters Institute Newsletter". It was developed to keep KWI Board members, officers and friends up-to-date on KWI activities, and to serve as a device to help explain the organization to those unfamiliar with its operations. With my graduate student Mike Pace, we set up the initial format on a Macintosh computer, printed the document on a copy machine using light blue paper, and distributed it. Two issues (Vol. I no. 1 and no. 2) were produced in this manner. Copies were exchanged with a variety of organizations, and the newsletter proved to be a valuable public relations tool for the KWI.

In 1993, KWI Board member Phil LaMoreaux came forward with an offer to print the newsletter through the facilities at P. E. LaMoreaux and Associates in Tuscaloosa, Alabama. The newsletter was re-titled the "KWI Conduit" and was professionally laid out and printed. From Volume II, Number 1 through Volume IV, Number 1 (Summer 1993 through Spring 1996), the KWI Conduit was produced this way through Phil's generosity. In the

fall of 1996, the KWI Board decided to change the delivery method of the KWI Conduit. In keeping with the computer age, it would be carried on the KWI homepage on the web, at:

<http://www.uakron.edu/geology/karstwaters/kwi.html> through the efforts of Ira Sasowsky, then Chair of the Communications Committee (now Vice President of the Communications Department). The hard copy of the KWI Conduit was de-emphasized, with only a handful produced for exchange purposes and friends of the KWI (mostly overseas) who did not have easy access to the web. These hard copies were once again produced on a computer (now an IBM clone) and printed on a copier.

Now comes the next change. After over five years of producing the KWI Conduit, I am stepping down as editor. The KWI is making a major effort to give the Institute an identity separate from the KWI Board, the oversight body. As a Board member and as KWI Conduit editor, I wear two hats. To gain the desired separation of the Board and the Institute, I am willingly giving up the editorship. Burnout has been a factor as well. I am placing the KWI Conduit in the capable hands of Toby J. Dogwiler, my graduate student and an up-and-coming karst scientist. Toby is finishing his MSc with me this spring, and will advance onto a PhD program in the fall of 1998. He did an undergraduate thesis on a karst hydrology project in Ohio while at Wittenberg University. He is currently working on problematic dissolutional features found in cave ceilings called "bell Holes", whose origin has been controversial. He has presented his work in a variety of venues, and is committed to a career in karst. He will produce the next issue of the KWI Conduit in the spring of 1998 (Vol. VI, no. 1) with me around to nag him, and then take production of the document with him as he moves on for his PhD. Please help him as you have helped me by supplying him with karst science information of use to us all. Toby can be reached by mail at: Department of Geosciences, P.O. Box 5448, Mississippi State, MS 39762. His e-mail is: tjd2@ra.msstate.edu and his phone is (601) 323 7658 [home] or (601) 325 2915 [office, but shared with many others].

--John Mylroie

KARST WATERS INSTITUTE CREATES TOP TEN LIST OF ENDANGERED KARST ECOSYSTEMS

John Mylroie and Kristen Tronvig

Some of the most unusual species of organisms known to science occur exclusively in the perpetual darkness of caves and voids. Hidden from view, these "ecosystems beneath our feet" are prominent in karst landscapes. Springs, sinkholes, blind valleys, and cave entrances signal the presence of karst, and indicate that cave systems formed by dissolution may exist. Similarly, lava develops karst-like features (especially caves) as the result of the crusting over of cooling lava flows. These caves, or lava tubes, form a unique biological habitat.

The Karst Waters Institute (KWI) held a scientific conference in February, 1997, titled: "Conservation and Protection of the Biota of Karst". The conference, which attracted 100 participants from 10 countries, resulted in discussions on how to protect endangered karst ecosystems. The Karst Waters Institute responded with its first annual nomination of endangered karst communities, in order to raise public awareness about these communities in general and threatened or endangered karst ecosystems in particular. These karst habitats are subjected to a variety of threats including development, mining, petrochemical extraction, groundwater pumping, waste dumping, transportation, and agricultural runoff. To identify candidates for critical karst ecosystems, the Karst Waters Institute solicited information on endangered karst from scientists and experts worldwide.

The Karst Waters Institute received 40 nominations of endangered karst communities. From these nominations, it has constructed a list of the ten areas in most urgent need of protection for the 1998 year. The most critical factors in determining the karst systems of greatest importance were: (1) the biological significance (whether the species are rare, endemic, or threatened, or if the community is rich in its biodiversity), (2) the actual threat to the karst community, and (3) relevant local groups interested in protection of the threatened karst. It is the hope of the Karst Waters Institute and all those who participated in the project that this study will provide the beginning of increased public awareness of the threats to these karst areas and stimulate enhanced protection efforts.

The ten most endangered karst communities for 1998 are the following:

- Blue River Basin, southern Indiana, USA
- Cape Range Peninsula, Australia
- Church and Bitumen Caves, Bermuda
- Cueva del Viento System, Canary Islands
- Fricks Cave, Georgia, USA
- Ha Tien-Hon Chong, Vietnam
- Jollyville Plateau, Texas, USA
- Koloa Lava Tube System, Hawaii, USA
- Lez Karst System, France
- South Central Kentucky Karst, Kentucky, USA

The Blue River Basin in southern Indiana, USA has over 1000 caves, including Wyandotte Cave and Marengo Cave. It is home to over 100,000 federally endangered Indiana bats as well as many other rare and endemic species. Blue River Basin also contains rare karst plant communities such as limestone glades, chert barrens, and upland sinkhole swamps. The area is threatened by intense commercial and residential development pressure from Louisville, Kentucky. Local organizations interested in the well-being of this karst system include The Nature Conservancy, Indiana Karst Conservancy, and the American Cave Conservation Association. The only hope for preservation of the Blue River Basin is for local public and county officials to realize how sensitive and special this area is and for them to implement appropriate plans to protect the area.

Cape Range Peninsula is located in northwestern Australia, about 1100 km north of Perth. The peninsula supports rich fauna in each of its terrestrial, freshwater and anchialine systems. The peninsula contains a karst system with mostly endemic cave species and is amongst the most diverse in the world. The area is threatened by a variety of land uses including water extraction, urban development, limestone quarrying, petroleum exploration, overpumping of water resources within the aquifer, and waste disposal. The Australian Cave and Karst Management Association Inc. and the Australian Speleological Federation, along with the Australian scientific community and some governmental agencies, are interested in protecting the Cape Range Peninsula. Protection of both the natural and economic resources of this area will require the development and implementation of proper local and regional land management based on sound research.

Church and Bitumen Caves are located beneath Ship's Hill on the grounds of the Marriott Castle Harbour Resort in Hamilton Parish, Bermuda. Church Cave contains the largest underground lake in Bermuda. Bitumen Cave, just north of Church Cave, is the deepest underwater cave in Bermuda. There are at least eleven cave species which are found only in the lakes of these caves, nine of which are listed as critically endangered by the International Union for the Conservation of Nature Red List. The Castle Harbour Development includes a \$60 million housing project which involves the construction of 37 luxury townhouses on top of Church Cave and a retail center on top of Bitumen Cave. Partially treated wastewater from the development will be used to irrigate golf courses surrounding the caves. The Bermuda Plan of 1992 prohibited any development that is harmful to caves, but development dollars proved to be more persuasive than environmental protection and Castle Harbour was subsequently given the authority by the government to proceed with the project. The Bermuda-based group, Save Open Spaces (SOS), hopes to encourage the Marriott Hotel corporation and the Bermuda Government to preserve these caves.



The Cueva del Viento System is located in the upper part of the Icod de los Vinos (Tenerife, Canary Islands, Spain), within the northern slope of Pico del Teide. It is a set of lava tubes containing approximately 19 km of galleries. It is remarkable for its biodiversity, with all but one of its 35 cave species being endemic to Tenerife, and ten are endemic to Cueva del Viento. Threats to the system include sewage dumping, tourist refuse, and the uncontrolled and illegal building of superjacent housing. Local groups concerned with the well-being of Cueva de Viento include the Canarian Federation of Speleology, the Department of Animal Biology at La Laguna

University, and the Viceconsejaria de Medio Ambiente of the Canarian Government. Conservationists continue to lobby the Canarian Government and the Cabildo de Tenerife in an effort to encourage these official bodies to declare the Cueva del Viento a preserved natural site - a plan that was first devised, but then abandoned six years ago.

Fricks Cave, located near Lafayette, Georgia, USA in Walker County is one of the most biologically significant caves in the southeast region of the United States. It is home to the endangered Gray bat, a rare cave salamander, as well as many beetles and other invertebrates. The cave's main threat is development, mostly because it is in the vicinity of ideal real estate for commuters to the city of Chattanooga. There are several local groups who are interested in the cave, including the Southeastern Cave Conservancy Inc. (SCCI), The Nature Conservancy, and the Georgia Department of Natural Resources. The property containing the cave has been purchased at auction by SCCI who still needs to raise \$100,000 in order to maintain ownership and provide the resources necessary to protect the cave. Unfortunately, SCCI is still uncertain that it can meet this financial goal.

Ha Tien-Hon Chong Karst in southern Vietnam has a unique compilation of plant and animal species due in large part to its geographical isolation. Cave animals limited to this area include springtails, beetles, woodlice, and millipedes. Ha Tien-Hon Chong also contains numerous vertebrates including bats, reptiles, birds and small mammals. A cement plant, the Morning Star Project, is scheduled to be built on the Hon Chong which will affect most of the karst ecosystem and destroy prime habitat. Limestone quarries scheduled to supply the cement plant would cause irreversible damage. Holderbank, the Swiss bank responsible for financing the project has proved especially insensitive to environmental issues involving the karst. Protests by locals, provincial authorities and scientists from Ho Chi Minh University have, so far, all been ignored by the Hanoi government. The threat to the Ha Tien-Hon Chong karst highlights the difficulties which environmentalists face when attempting to protect unique ecosystems on commercially attractive properties in underdeveloped countries.

The Jollyville Plateau in Travis county, Texas, USA is located about 16 km west of downtown Austin and just east of Lake Travis on the Colorado River. It contains at least 91 caves and sinks with a number of endemic cave species including spiders, pseudoscorpions, harvestmen, beetles and a newly discovered, undescribed cave salamander. There are six cave species which appear on the U.S. endangered species list. They are: Tooth Cave spider, Bee Creek Cave harvestman, Bone Cave harvestman, Tooth Cave pseudoscorpion, Tooth Cave ground beetle, and Kretschmarr Cave mold beetle. The animals are threatened by land development, utilities, transportation, chemical spills and imported red fire ants. Also, an industrial park is scheduled for development on the old Kretschmarr Ranch which will make it increasingly difficult to protect the cave communities. The Texas Speleological Survey is very interested in the well-being of the Jollyville Plateau. Funding is needed for proper management, fire ant treatments, and the placement of effective gates.

The Koloa Lava Tube System in the southeast corner of Kauai near the towns of Koloa and Poipu is one of the most threatened communities in Hawaii as it contains at least three endemic cave species. Two of these species, the no-eyed, big-eyed wolf spider and a terrestrial amphipod, are candidates for listing under the US Endangered Species Act. The third endemic species is an undescribed terrestrial isopod. Other species found within these caves include cockroaches, termites, earwigs, and springtails. The system is threatened by agriculture, urbanization, refuse dumps, deforestation, mining, and the invasion of alien species. Local groups interested in the conservation of the Koloa Lava Tube System include the Hawaii Speleological Survey, the Hawaii Conservation Task Force of the National Speleological Society, the Pacific Islands Ecosystem Office of the USFWS, and some local government agencies. Public awareness will encourage both the protection of these caves and the federal listing of the threatened species living within these caves. It will also assist in the establishment of research to monitor the effectiveness of protective management strategies. Again, protection of surface environments is the key to the conservation of this system.

Lez Karst System is in the south of France about 32 km northeast of the city of Montpellier. The Lez is the richest karst system within the region, containing 37 cave species. Its primary threat is overpumping on the Lez Spring - a difficult threat to counter since the spring is the main source of drinking water for the people of Montpellier. Although, Lez Spring has been exploited since the 18th century, groundwater pumped from its aquifer has

increased 100 percent in the last 30 years, causing the water table to drop nearly 30 m. It appears that there are no local groups interested in the system and the only groundwater monitoring is conducted by the water company. The effort to protect Lez is spearheaded by biologists from the Groundwater Ecology Laboratory at University of Lyon. The University of Lyon group hopes that public awareness will help the threats to Lez pressure the Town of Montpellier and to the Compagnie Generale des Eaux into the development of a plan to protect biodiversity in the karst system.

The South Central Kentucky Karst is a biodiversity hotspot among caves. Approximately 130 species inhabit the South Central Kentucky Karst, including the endemic and federally endangered Kentucky Cave shrimp, federally listed Indiana and Gray Bats, and the Northern Cavefish. It is also the only place where both the Northern and Southern Cavefish coexist. The threats to the South Central Kentucky Karst include agriculture, oil and gas extraction, expanding transportation corridors and urban development. Encroachments have resulted in habitat loss, poor water quality, and a degradation of the prairie ecosystem that once dominated the sinkhole plain. Containing these threats will require the construction of runoff retention basins along Interstate Highway 65, monitored use of fertilizers in agriculture, and the restoration of Green River's natural flow pattern.

The Karst Waters Institute actively solicits participation in its "Top Ten" list, both in the management of selected karst ecosystems, and to identify ecosystems to be included in the next "Top Ten" list. If you are interested in working with this project, contact Dr. David C. Culver at the Department of Biology, American University, 4400 Massachusetts Avenue, Washington D.C., 20016, or by e-mail at karst@american.edu.

SOUTHEASTERN CAVE CONSERVANCY, INC.: A MODEL FOR KARST PROTECTION

The Southeastern Cave Conservancy, Inc. (SCCI) is a non-profit organization dedicated to the protection of karst and caves through ownership. Formed 6 years ago, the SCCI has acquired a large number of caves in the Southeastern United States, primarily in Alabama, Georgia and Tennessee. The SCCI works with other groups, such as NSS Grottos, The Nature Conservancy and government agencies, to secure endangered and valuable caves and karst. The SCCI is able to make land purchases by raising money through donations. They have been very aggressive in working to acquire important cave properties, and now own thousands of acres and many caves. The SCCI applies the latest ideas in land management and cave conservation to their acquisitions. The SCCI maintains a web page with details about their organization at: www.scci.org and can be reached by e-mail at: info@scci.org. As population and development pressures expand in the U.S. and elsewhere in the world, the acquisition of cave and karst areas may be the only way to insure the survival of these phenomena. The SCCI has taken a leadership position on this technique of karst protection.

KWI SYMPOSIUM ON KARST MODELLING

Art Palmer

The Karst Waters Institute will host a symposium on karst modeling in early 1999, with the goal of discussing recent advances in digital and conceptual models of karst porosity. Several professions require an understanding of the nature and distribution of karst porosity, and the symposium is designed to draw together these diverse groups -- including groundwater hydrologists and modelers, karst researchers, engineers, petroleum geologists, and economic geologists -- to discuss how karst can be best quantified to fit their needs.

Karst porosity can be modeled in several ways:

- Traditional models determine the temporal and spatial potentiometric field, from which it is possible to estimate flow directions, divides, and velocities.
- Mass-transport models piggyback onto the groundwater models to estimate contaminant dispersion.
- Geochemical models can determine the equilibrium chemistry of samples, or investigate the character of

idealized solutions (reaction-path models).

- Models of porosity evolution reveal the factors that control dissolution rates and the distribution of carbonate porosity.
- Hardware models, though rarely used because of scaling problems, can illustrate certain concepts of porosity development.
- Statistical models may be used to quantify the distribution of karst features.

These various model types are most often used independently to solve specific problems of narrow scope. But most traditional models are valid only when combined with the conceptual and geochemical approaches.

Some of the most pertinent questions include: What are the relative percentages of the different types of porosity in a karst aquifer -- e.g., intergranular, fissure, and solution porosity -- and what is their spatial variability? How do they interact hydrologically? Can the distribution of solution conduits be predicted? How do they affect contaminant paths? How can one predict or monitor contaminant paths in karst aquifers? How do conduits affect the head distribution and flow within the surrounding aquifer? Is it possible to construct a digital model of a karst aquifer? If so, can it be done with traditional models, or is it necessary to devise entirely new software?

There are no simple answers to these questions, and many hydrologists and modelers have no idea where to begin. To help fill the gap, this symposium will be tightly structured to address the major questions. Invited speakers will provide a coordinated program that addresses specific issues of practical value. Contributors will include karst specialists, traditional groundwater modelers, carbonate sedimentologists, and representatives of the applied sciences such as petroleum geologists and engineers. Traditional modelers will be on hand from federal agencies such as USGS and EPA and from private consulting firms, from the modeling group at the University of Waterloo, and from several European universities. A poster session will provide an opportunity for contributors to present the results of specific field projects. It may be appropriate to include a field trip, which, depending on the weather, may be held mainly underground. Since the symposium format will resemble that of a short-course, it is anticipated that the program will draw a substantial audience of professionals with a need for this kind of karst information.

The symposium will last about three days in January or February 1999. The tentative site is Reston, Va., which combines ease of access with a mild climate and an opportunity for field observations, and is also the location of the national headquarters of the U.S. Geological Survey. Details will be distributed when the final arrangements are made.

The symposium chairs are Arthur N. Palmer (607-436-3707, palmeran@oneonta.edu) and William K. Jones (304-725- 1211, wjones@intrepid.net). Contact them for further information.

UPDATE ON THE KWI WWW HOMEPAGE

Ira D. Sasowsky

KWI Vice-President for Communications

Since its inception, the KWI WWW Homepage has served a dual role of providing information about the Institute, as well as general information on karst science. Recent additions have been the inclusion of all KWI Conduit issues online, a series of links of interest to karst biologists and geologists, and a detailed bibliography of major scientific works in karst. As we continue to expand the site, we are VERY interested in hearing of additional items that users feel would be useful to have on the site. This could include ideas, other web sites to consider for inclusion in the KWI site, or actual contributions that you want to work on. Contact me at: ids@uakron.edu with your thoughts. One idea which is currently under consideration is a glossary of karst terminology (annotated and illustrated). A link to the bibliographic database of SpeloAbstracts has already been established. The National Speleological Society site has been adding useful information, and we have word that a Cave Research Foundation site is in preparation. Please advise me of web page sites that focus on karst science or

data which might be likely candidates to add to our homepage. The Web page also contains information on ordering our publications. As these paper-copy publications go out of print, it is likely that we will make electronic versions of the documents available from the site. There has been discussion of initial electronic publishing, and this too may come about eventually.

KARST WATERS INSTITUTE PARTICIPATES IN THE NATIONAL CAVE MANAGEMENT SYMPOSIUM

The Karst Waters Institute joined the National Cave Management Symposium Steering Committee (NCMSSC) in the summer of 1997, to provide the KWI viewpoint on cave management. Rane Curl made the KWI proposal to join the NCMSSC at the National Speleological Society annual meeting in Missouri in June. The NCMSSC supported the proposal and immediately seated Rane as the first KWI representative. The KWI believes that the best cave management decisions are made when land managers have the best available data. Often that data is scientific in nature, and the KWI can assist in finding the data, or in locating people who can collect it. Through the various KWI conferences, symposia, and publications, the Institute can assist the cave management community. The recent establishment of the KWI's Top Ten List of Endangered Karst Areas is a good example (see page 4). As KWI representative to the NCMSSC, Rane attended the National Cave Management Symposium in Bellingham, Washington, October 7-10, 1997. He presented a paper titled: "Karst Waters Institute - Karst Science Serving Groundwater and Biological Resources". The full program of titles and abstracts can be found on the web at: <http://www.halecyon.com/samara/ncms97/abstracts.htm>.

KWI PUBLISHES THE KARST HYDROLOGY ATLAS OF WEST VIRGINIA

The KWI has published the long-awaited Karst Hydrology Atlas of West Virginia, written by KWI Board of Directors member and KWI Executive Vice President Bill Jones, as KWI Special Publication 4. The original concept was conceived in 1991 as a KWI demonstration project for what the Institute could do to support karst science and successful land use in karst areas. Bill Jones compiled the known dye test and cave survey data from West Virginia so as to describe the current knowledge of the karst drainage basins of the state. Bill was assisted by a number of experienced cavers in obtaining the most accurate and up-to-date data. Financial support for the project was received from the Cave Conservancy of the Virginias, the Cave Research Foundation, the Conservation Fund, the National Speleological Society, and the Institute itself. Bill Jones put in countless hours in the analysis of the data and the writing of the manuscript. The book is 111 pages long, large format (11" x 14"), soft cover and wire bound. The [Table of Contents](#) shows the topics covered by the book. Part 1 deals with the basics of karst hydrology, while Part 2 provides detailed results of individual karst drainage basins. The book is illustrated with numerous photographs, charts, diagrams, tables, and maps presenting the karst data of West Virginia. The Atlas is available for \$35 postpaid, from: KWI Publications Sales, Attn: E.L.White, 542 Glenn Rd., State College, PA 16803 USA.

CALL FOR PAPERS

Joint meeting of Friends of Karst & The International Geological Correlation Program Project 379: "KARST PROCESSES AND THE GLOBAL CARBON CYCLE"

The International Geological Correlation Program Project 379: "Karst Processes and the Global Carbon Cycle" will meet on September 23, 24, and 25, 1998, at Mammoth Cave, Kentucky, USA. The meeting will precede the XXVIII Congress of the International Association of Hydrogeologists, scheduled for the following week in Las Vegas, Nevada. We currently anticipate a program that will include two days of scientific presentations on all aspects of karst science and the role of atmosphere-landscape interactions in carbonate terrains. A third day is planned for field trips, which will be offered to a variety of sites in and around the Mammoth Cave System. At a

current surveyed length of over 560 km, it is the world's most extensive known cave system. The region has over the years attracted many explorers and scientists and a significant body of karst science has evolved from studies there.

Understanding water-rock interactions that occur within carbonate rock terrains provides a common theme of interest for scientists interested in global carbon cycling as well as those who study development of karst landscapes and aquifers. Traditionally, however, there has been limited interaction between these groups. The purpose of this meeting is to bring together scientists from a variety of disciplines, to share ideas and insights developed through a variety of experiences and research paths.

Mammoth Cave is located in South Central Kentucky, about 140 km north of Nashville, Tennessee and a similar distance to Louisville, Kentucky further to the north. A variety of accommodations will be available, including both hotels and camping. Sessions will be held at Western Kentucky University in Bowling Green, Kentucky, 45 km to the south of the National Park.

Abstracts (in English) of up to 250 words are solicited on all aspects of karst science and are especially encouraged in the area of carbon dioxide-landscape interactions at all scales. Abstracts must be received by March 1st, 1998. Authors whose papers are accepted for presentation will be notified by April 15, 1998.

Please submit abstracts to:

Joe Meiman, Division of Science and Resource Management, Mammoth Cave National Park, Mammoth Cave, KY 42259 phone: (502) 749-2508

This meeting will be hosted by the Center for Cave and Karst Studies, Western Kentucky University, Mammoth Cave National Park, and the Cave Research Foundation.

More information can be found on the conference web page at: <http://www2.wku.edu/~grovecg/>

CALL FOR PAPERS

Groundwater Tracing Conference

June 5-6, 1998

Eastern Kentucky University

Richmond, Kentucky

Session topics:

- Tracers and Tracing in Karst Terranes
- Tracers and Tracing in Granular and Fracture Media
- Analytical and Laboratory Techniques
- Poster Presentations

Abstracts deadline: February 2, 1998

Review of abstracts will be completed and the authors will be notified by March 2, 1998 regarding the status of their acceptance. Accepted papers will be due April 20, 1998. Indicate with the submission of the abstract your preference: oral presentation, poster presentation, either type of presentation.

Oral presentations will be limited to 15 minutes with five minutes of questions and discussion afterward. There will be a limited number of 30 minute presentation slots, if you believe the material and subject matter in your paper would be appropriate for this extended format please indicate your interest when you submit your abstract. Format for the papers will be provided when you are notified of the acceptance of your abstract. The page limit for papers is anticipated to be 10 pages.

Submit abstracts to: Attention Peter J. Idstein or Dr Ralph O. Ewers, Tracing Conference, Earth Sciences Department, Roark 103, Eastern Kentucky University, Richmond, Kentucky 40475 Phone: (606) 622-1273 Fax: (606) 622-2876 E-mail: TRACING@ACS.EKU.EDU

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NEW PUBLICATIONS OF INTEREST TO THE KARST COMMUNITY

Evaporite Karst: Origins, Processes, Landforms, Examples, and Impacts

This collection of papers from the 1996 GSA meeting in Denver, Colorado, coordinated by Kenneth S. Johnson and James T. Neal, has been published by Gerald Friedman as Volume 12, Number 1 (1997) of the journal Carbonates and Evaporites. The volume contains 17 papers plus a preface by the conference coordinators. Copies can be purchased for \$20 (\$25 outside the U.S.) from: Northeast Science Foundation, P.O. Box 746, Troy, NY 12181-0746, (518) 273-3247.

Geology and Hydrogeology of Carbonate Islands

Edited by H. Leonard Vacher and Terrence M. Quinn, published by Elsevier as "Developments in Sedimentology, Volume 54". This mammoth, 1000+ page book contains detailed descriptions of 30 carbonate islands and island groups found throughout the world. In addition to traditional carbonate islands such as Bermuda, the Bahamas, Barbados, and Guam, the book covers numerous other more obscure and remote island groups, such as the Caymans and Isla de Mona in the Caribbean, Pitcairn and Makatea islands in the Pacific, and Diego Garcia in the Indian Ocean. For many of the islands, descriptions exist of the karst features and karst hydrology under a variety of geologic conditions. The book is available for \$309 from Elsevier, beyond the range of most private individuals, but well worth requesting for academic libraries.

UPCOMING EVENTS OF INTEREST FOR THE KARST COMMUNITY

- **8th International Symposium on Vulcanospeleology** with field camps and excursions; January 31-February 14, 1998, Nairobi, Kenya. USA contact: Bruce Randall, 324 Questend Ave., Pittsburgh, PA 15228; (412) 344-3056. (see Feb. '97 NSS News, page 57)
- **20th Anniversary of the "Che Guevara" Speleological Group**, Matanzas, Cuba; March 6-12, 1998. Open to all interested cavers. Caving, camping, seminars. Registration fee of \$100 U.S. includes food, camping, and transport (except airfare). Info: Prof. Pedro Pablo Gonzalez Castro, Sociedad Espeologica de Cuba, Novena No. 8402 esq. 84, Playa CP 11300, Ciudad de la Habana, Cuba Phone: (537) 22-5025, fax: 24-0438 or 24-2985
- **Second International Symposium on Karst Water and Field Seminars**; Kermanshah, Iran, **Spring 1998**. A. Afrasiabain, General Secretary, FAX 0098-21-7533186.
- **National Speleological Society Convention**; August 3-7, 1998. Sewanee, Tennessee. Wmn Shrewsbury, P.O. Box 444, Chattanooga, Tennessee USA 37406. Tel: (615) 886-3296, [e-mail: 75254.1025@compuserve.com](mailto:75254.1025@compuserve.com).
- **49th Highway Geology Symposium**; September 10-14, 1998, Prescott, Arizona. Karst is a major concern for highway construction and maintenance. Ronald Blackstone, Arizona Department of Transportation, Materials Group, 1221 N 21st Ave., MD 068R, Phoenix, AZ 85009-3740, (602) 255-7368 (fax 8138), [Email: RBLACKSTONE@dot.state.AZ.US](mailto:RBLACKSTONE@dot.state.AZ.US)
- **Fluid Flow in Carbonates: Interdisciplinary Approaches**; September 20-24, 1998, Door County, Wisconsin. Maureen Muldoon, Wisconsin Geological and Natural History Survey, 3817 Mineral Point Rd., Madison, WI 53703 USA, (608) 262-5180 (fax 8086), [Email: muldoon@facstaff.wisc.edu](mailto:muldoon@facstaff.wisc.edu)
- **International Association of Hydrogeologists XXVIII Congress and Annual Meeting of the American Institute of Hydrology**; September 27-October 2, 1998, Las Vegas, Nevada, USA. IAH/AIH Conference Las Vegas--Conference Headquarters, Attn: Helen Klose, 2499 Rice St., Suite 135, St. Paul, MN 55113-3724 USA, (612) 484-8169 (fax 8357), [Email: AIHydro@aol.com](mailto:AIHydro@aol.com).

- **"SUBCITY '98"** Meeting on Caves of Natural Origin Under Cities & Urban Areas; October 5-10, 1998, Budapest (+Aggtelek), Hungary. contact Nor Fleck, Hungarian Speleological Society, H-1027 Budapest, Fo u. 68. Phone/Fax: (361) 201 9493, [Email: MKBT@mail.matav.hu](mailto:MKBT@mail.matav.hu)
 - **National Speleological Society Convention**; July 12-16, 1999. Twin Falls County Fairgrounds, Filer, Idaho. contact: David W. Kesner, PO Box 1334, Boise, ID 83701; (208) 939-0979; [Email: drdave@micron.net](mailto:drdave@micron.net)
 - **9th International Symposium on Vulcanospeleology of the IUS**; Sept. 12-18, 1999, Catania, Italy. Contact: Giuseppe M. LICITRA - Centrol Speleologico Etneo Via Cagliari, 15, 95127 CATANIA, Italy [Email: licitra@mail.asianet.it](mailto:licitra@mail.asianet.it)
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KWI CONDUIT

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